

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-025073**Date Inspected:** 06-Jul-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** William Sherwood**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** SAS Tower**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At OBG 11W/12W top deck plate A1 to A5 outside , QA randomly observed ABF/JV qualified welders Hua Qiang Hwang and Wai Kitlai seal welding top deck plates 'A1 to A5' to the backing bar. The welders were utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. The joint had a single V-groove butt joint design with the top plate being seal welded with the backing bar. The plate with the backing bar was preheated to greater than 150 degrees Fahrenheit using acetylene gas torch prior welding. During the shift, ABF QC William Sherwood was noted monitoring both welders with welder Hua Qiang Huang and Wai Kitlai having noted welding parameters of 285 amperes/23.6 volts and 270 amperes/24.8 volts respectively which deemed in compliance to the contract requirements. The welders have not completed the seal welding of the joint during the shift and should continue tomorrow.

At OBG 11W/12W bottom plate 'D' inside, QA randomly observed ABF certified welder James Zhen ID #6001 perform 1G (flat position) Submerged Arc Welding (SAW) welding root pass then fill pass on the CJP splice butt joint. The welder was utilizing F7A6-EM12K-H8, 3.2mm electrode with corresponding Esab OK Flux 10.62 flux and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1. The joint being welded has a single V-groove butt joint with backing bar. The plates were preheated to more than 150 degree Fahrenheit using Miller Proheat 35 Induction Heating System heater blankets located at the opposite side of

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## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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the plate prior/during welding. Welding parameters were monitored by ABF/QC Pat Swain. QA noted the welding parameters were 540 amperes, 32.6 volts and travel speed of 377 mm per minute with calculated heat input of 2.8Kj per mm. The workmanship and appearance of the completed root/fill pass deemed satisfactory. At the end of the shift, SAW fill pass welding was still continuing and should remain tomorrow.

At Tower East Shaft Splice #3 @Elevation 114 meters;

At East (B-C) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Salvador Sandoval continuing to perform production welding on the top half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process with 1.8mm diameter E71T-8 wire electrode implementing Caltrans approved (WPS) ABF-WPS-D15-F2200-3. The welder was noted 3F (vertical) fillet welding the splice plate to interior corner closure plate of the tower shaft. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates to be welded prior to welding. This QA Inspector observed QC Inspector Steve Jensen using a Fluke infra red temperature gauge to verify the preheat temperature of more than 300°F. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. At the end of the shift, 3F fillet welding was still continuing and should remain tomorrow. ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 300°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower East Shaft Splice #3 @Elevation 114 meters;

At Southeast (C-D) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Xiao Jian Wan continuing to perform production welding on the top half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process with 1.8mm diameter E71T-8 wire electrode implementing Caltrans approved (WPS) ABF-WPS-D15-F2200-2. The welder was noted 3F (vertical) fillet welding the splice plate to interior corner closure plate of the tower shaft. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates to be welded prior to welding. This QA Inspector observed QC Inspector Steve Jensen using a Fluke infra red temperature gauge to verify the preheat temperature of more than 300°F. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. At the end of the shift, 3F fillet welding was still continuing and should remain tomorrow. ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 300°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At OBG 10W/11W bottom plate 'D' outside, QA randomly observed ABF personnel Jeremy Dolman perform plasma arc gouging on the backing bar removal of the welded splice butt joint. The personnel was using an Esab plasma arc gouging machine that has the nozzle holder attached to a Bug-o track. Gouging of the backing bar was not completed today and should continue tomorrow.

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# WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

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## Summary of Conversations:

No significant conversation occurred today.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

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**Reviewed By:** Levell, Bill

QA Reviewer